40p


Explained by experienced

# WORLD LISTENERS

# HOW TO LISTEN TO THE WORLD

*Explained by*
*experienced listeners of*
*many countries*

and

by O. LUND JOHANSEN

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WORLD RADIO HANDBOOK
*for Listeners*

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## THE CHARACTERISTICS AND DIFFUSION OF SHORT WAVES

Short waves are wavelengths from ten to one hundred meters. Let us follow the course of these waves from the moment they leave the aerial of the transmitter (fig. 1).

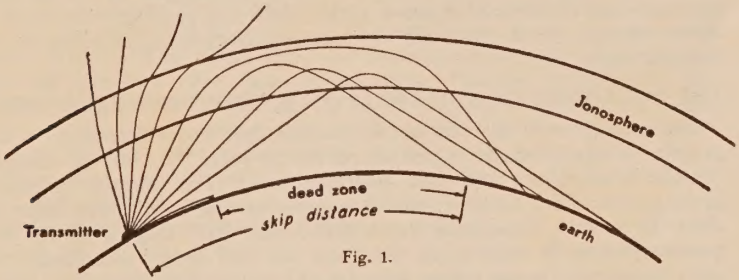



Fig. 1.

*Reflection and echo waves.*

Normally radio waves will spread in all directions, provided no directional aerial is used. The waves which spread along the ground (the so-called ground waves) are soon absorbed by it or by buildings, etc.; other waves spread into space (the socalled space waves) at different angles. and at a height of about one hundred or two hundred kilometers above the ground enter a region called the ionosphere. From this they are thrown back to the ground in the same way as rays of light are reflected from a looking glass, and hit a place on the ground perhaps far away from their starting point. These reflection distances vary according to the wavelength which is used. The distance from the transmitter to the point where the reflected wave hits the ground is called the "skip distance". You can only hear it faintly between the place where its ground wave dies out and the place where its space wave returns to earth; therefore that zone is called the "dead zone".

The speed of radio waves is 300.000.000 meters per second. This means the waves can travel round the earth about eight times a second. Some-

times some of the radio waves may travel two or more times round the earth, or may travel round it in opposite directions, so that the broadcast is received as if there were an echo, a thing which may often make a broadcast unintelligible.

Wavelengths under ten meters (very and ultra short waves) can pass almost unhindered through the ionosphere layer, without being reflected back to earth. The actual wavelength at which reflection to the ground stops is called the "limit wave", and in the daytime it is usually just about ten meters.

The limit wave is dependent upon the density of the ionosphere layer, which is itself influenced by the position of the sun. It may occasionally happen that waves down to five meters are reflected to the ground and give surprisingly good long-distance results. The limit wave is shorter in the daytime than at night, but during the course of the year conditions vary so that the day and night limit waves differ considerably during the winter, whereas they are almost equal during the summer. Therefore, it is necessary during the winter to use very short wavelengths in the daytime and very long short wavelengths at night, whilst it is possible in the middle of the summer to use practically the same wavelengths at all hours of the day and night.

## THE INFLUENCE OF SUN SPOTS ON SHORT WAVE RECEPTION.

The ionization by the sun is not constant, but varies according to the prevalence of sun spots, in periods of eleven years. In 1947 the sunspot "number" was about 150 (sun spot maximum). The sunspot "number" decreases for about six years, and it is expected that it will have fallen to about 10 in 1954. Experience shows that longer wave lengths (lower frequencies) must be used when there are few sun spots; accordingly we must be prepared to use longer wave langths during the coming four years. If for instance we heard Buenos Aires best on the 16 meter-band at 9 p. m. in 1947, we must in 1954 use the 25 meter-band in order to receive this station at the same strength at that time of the day.

## FADING

Most readers will be familiar with the unsteady signals so common in the short wave range. This is usually known as fading, and the depth to which the signal fades varies from station to station and day to day. The speed at which the signals fades in also variable, and whilst slow fading can be tolerated, a very fast or 'fluttery' type results in poor programme value.

This fading is mainly caused by the uneven reflection of the signal from the ionospheric layer, but can also be caused by sun spot activity and 'Northern Lights' (Aurora borealis). The two latter causes usually result is a more severe and sometimes erratic type of fading. Most stations may be inaudible for hours or days, whilst those which can be received are weak and fluttery. On the other hand stations which are weak under normal conditions

may come through at much greater strength during these periods of 'freak reception'.

In order to counteract this fading, to some measure most modern receivers are fitted with a device, which automatically controls the volume (this is known as the A. V. C. system). It cannot increase the strength of the signal, but decreases the volume as the strength of the incoming signal increases. This tends to give an even volume from the loud speaker. If the signal received is very weak no action takes place, as is also the case when the fading is very rapid indeed. However, when listening to more powerful stations this A. V. C. does help in providing real programme value as opposed to mere interest in long distance reception; in this latter case the fading is tolerated by virtue of the fact that the listener is more interested in the station rather than in the actual programme.

## WAVE BANDS AND WHEN TO USE THEM.

As can be seen from the scales of most receivers, stations fall within certain groups of wavelengths usually comprising the following bands: 11 m, 13 m, 16 m, 19 m, 25 m, 31 m, 41 m, 49 m, and 60 m, but most receiver are only able to receive on the 16, 19, 25, 31, 41 and 49 meter bands. Between these bands there are numerous other stations which are used for purposes other than broadcasting. Amateur transmitters, for instance, use wavelengths in the 10, 13, 20, 40 and 80 meter bands. We shall only concern ourselves with bands assigned to the radio stations. Later on we will return to the method of finding the stations.

When must you use the 16 meter band and when the 31 meter band? You have learned that in winter and also during the evening and night hours longer wavelengths (lower frequencies) must be used than in summer and by day. A short-wave engineer has given a short explanation of this matter and has indicated in a broad outline scheme the bands that may be used in different seasons for listening in to different countries (see page 18).

## THE RELATION BETWEEN WAVELENGTH AND FREQUENCY. (M. AND KC.).

The term wavelength being given in meters, is the oldest and best known. The newer and more exact term "frequency", given in kilocycles (or kilohertz) and, when these are divided by a thousand, in megacycles (megahertz) is not so well known to many listeners. Therefore, we give below a short explanation of the relationship between meters and kilocycles. Every transmitter is given a fixed wavelength for broadcasting corresponding to a fixed place on the scale of your receiver. The wavelength of a station is the number of radio waves which it sends out during one second divided into the speed with which the waves travel per second i. e. 300.000.000 meters. The frequency of a station is the exact number of waves which it radiates per second; a thousand waves are a thousand "cycles" or one kilocycle; a thousand kilocycles are one megacycle, which

is consequently one million cycles. The German names are: hertz, kilohertz and megahertz respectively.

How, then, is frequency converted into wavelength and vice versa? For that the following two formulae are used:

Frequency in kilocycles per second (kc/s) = 300.000 divided by the wavelength in meters, or:

Wavelength in meters = 300.000 divided by the frequency in kilocycles per second (kc/s).

It is considered that there must be at least 9 kilocycles between each of the stations on the scale in order to be able to separate them. If the stations are situated more closely together than 9 ks/s, a heterodyne whistle will be set up, or the disturbing broadcast of the neighbouring station will be heard mixed with the required station. Unfortunately conditions on the short waves are not yet so well regulated that this inconvenience can altogether be avoided. If we compare the medium wave band with one of the short wave bands, we discover that there is room for a far larger number of stations on the short waves (high frequencies). The lower the wavelength the more stations can be accommodated.

To become familiar with the relation between meters, kilocycles and megacycles look at the following table:

| Meters | Kilocycles | Megacycles |
|---|---|---|
| 49 | 6122 | 6.122 |
| 40 | 7500 | 7.500 |
| 31 | 9677 | 9.677 |
| 25 | 12000 | 12.000 |
| 19 | 15750 | 15.750 |
| 16 | 18750 | 18.750 |

## OPERATION OF THE RECEIVER AND IDENTIFICATION OF STATIONS.

If you do not know your receiver well, practise using the different knobs so as to learn their functions; you must know the change-overs to the different bands and so on.

First try tuning on each of the bands, and practise turning the knobs very slowly and smoothly. On the lowest wavelengths you will find it is difficult to capture and keep a station. One millimeter in the scale may mean two or more stations. Do not think that you will be able to get New York in the 49 meter-band in the middle of the day, but consult the table page 18. When you have found a station, it must be tuned in exactly by turning the tuning control carefully backwards and forwards with the volume control being adjusted so that the station can be just understood. In receivers which have no "bandspread" tuning the stations are situated very closely together.

Most stations use several wavelengths for the same broadcast, in this way giving listeners the opportunity of selecting the wavelength most easily

audible in the country in question. If you cannot receive a station on a certain wavelength, try one of the other wavelengths used by the station concerned. If one or more transmitters are so near in frequency to the station to which you are listening that your reception is interfered with, tune a little away from the correct tuning and the station which is interfering.

Reception conditions on the short waves may be variable and capricious. Where you were able to hear a distant station yesterday, there is may be only noise and "whistling" today. Therefore you cannot always count on hearing the wanted station when you desire.

Musical reproduction is not always as perfect on short waves as on medium and long waves. This is mainly due to fading, especially "selective" fading, when the high tones of the music fade away whilst the lower tones are unaffected, which is the cause of one type of distortion.

Do not forget that the tone control of the receiver must not always be left at "deep tone", which is the habit of many listeners because they think it sounds more agreeable -- actually they cheat themselves out of most of the high tones and get a hollow, booming bass reproduction, which makes speech particularly muffled and distorted.

It is an old superstition that it is necessary to sit up all night or half the night to hear the long distance stations.

If you have found an interesting station, how will you find it again another day? The best way is to paste a slip of millimetre-paper along the full length of your scale. The slip is divided into figures from 0—100 (or 200) so that you can find your way back to the wanted place in the scale with an accurary of a half or a whole millimetre. Most receivers, unfortunately, have rather vaguely marked scales, and the station names are not always printed in the exact positions. If you make notes of the stations you have received, of their degrees on the scale and so on, you will easily be able to find new and interesting stations between them.

If you receive a station transmitting in Chinese it is not necessarily a Chinese station; it may be Daventry, New York or Moscow, and you must wait for the announcement. Most stations identify themselves by announcements every full hour, others every half hour or every quarter of an hour. Have a look at your list of broadcasting stations at about the wavelength to which you have tuned, and as rule you will see that only three or four stations will be possible anyway. You will soon learn to distinguish between the English spoken in the United States of America and that of the B. B. C. London, between Spanish and Portuguese and so on. Every short wave broadcasting station has its own identification signal consisting of three to five letters or a combination of letters and numbers, of which the first one or two indicate the nationality. Knowledge of interval signals and distinguishing numbers is an invaluable help, as is a quick grasp of figures when the station gives its wavelength or frequency. The station does not always mention the name of the town from which the transmission comes, but gives a special slogan. That is especially the case with

the South American stations, e. g. "La Voz de los Andes" ("The Voice of the Andes"), which is used by Quito, HCJB, in Ecuador. Many stations employ fixed times and days to give listeners their transmission hours, programme schedules and wavelengths for the coming days. If you hear a station finishing its broadcast, listen in case it is mentioned when its next transmission will be. It is wise always to have paper and pencil handy near the reciever.

As a rule there will be some powerful stations in all bands which are easy to identify. Start with them, and note whether the new stations which you seek are situated above or below those you know — and how much. Remember, the weakest and most interfered with station is perhaps the most interesting DX.

## A GOOD AERIAL AND EARTH CONNECTION ARE NECESSARY FOR THE RIGHT UTILIZATION OF THE RECEIVER.

The importance of a really good aerial cannot be over-estimated. Even the best receiver cannot yield good results without a good aerial. It can even be said that the better the receiver, the better the aerial should be. Every aerial has the quality that it is adapted to a certain wavelength on which it gives the strongest signal to the receiver. The further you move away from that wavelength the less the aerial responds.

The aerial has another distinctive quality: as a rule, a certain direction or several directions relative to the aerial will always be the basis for the best reception results. You must know these factors before you put up your aerial.

Before some effective short wave aerials are mentioned, it will be useful to mention some of the principal rules to be observed in putting up the aerial. First and foremost it must be placed as far away from electrical installation wires as possible, and if possible at right angles to them. The height above the earth must be 30 feet or more, the higher and more exposed the better. The aerial itself must be of copper wire (1—2 millimeters thick) slung in aerial insulators. The aerial wire itself need not be insulated, but must not of course touch objects of metal.

### SINGLE-WIRE AERIAL

This simple aerial consists of a single wire which is elevated as high as possible and clear of surrounding objects. The length for normal 'all-band' reception is not decisive but should not be less than 30 ft. With some receivers it may be advisable to avoid lengths greatly in excess of this, so experiment with various lengths if possible. The lead-in should be kept clear of metal objects and if possible come direct to the receiver.

### WINDOM AERIAL

Whilst being slightly more complicated the results obtained are better than the first simple. The construction is shown in fig. 2. The consists of either 33 or 69 feet wire which should be about 14 s. w. g. although the

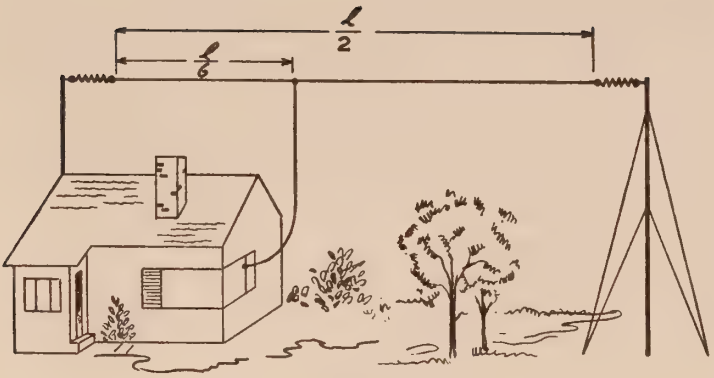



Fig. 2.

standard aerial wire sold as 7/22's by all radio shops will be suitable. The lead-in is of thinner wire 20 s. w. g. being the best size to use. This is tapped exactly one third of the way along the top — that is 11ft in the case of the shorter top and 23ft with the longer aerial. The lead-in should, if at all possible, leave the aerial in a steady curve to the receiver and not be pulled taught. This aerial is probably the best type for the average listener, as it can be tuned to almost any frequency by the matching unit shown in fig. 5.

## DIPOLE OR DOUBLET AERIAL.

This type of aerial (fig. 3) is mainly used for single band reception; i.e. the reception of stations within a small section of the short wave

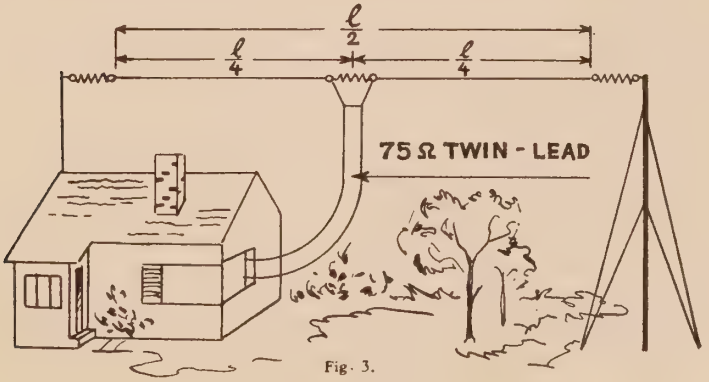



Fig. 3.

bands—say from 30 to 31 metres. The aerial is in two halves, insulated at the centre where each wire connects to the twin feeder cable which must be of the special type sold for the purpose and known as 75 or 80 ohm twin or co-axial. If used with the normal type of "domestic" receicer, a matching unit will be necessary as the two wires cannot be connected to the aerial and earth terminals — at least if the aerial is to function as a true centre fed dipole. The main direction of reception is at right angles to the line of the aerial, and on the given frequency the aerial gives a gain over the normal inverted L or single wire types.

## ANTI-STATIC AERIAL.

In locations where interference from nearby electrical apparatus, tram-lines, railways etc. or in busy towns where car ignition noise is trouble-some the aerial to be described (fig. 4) will make short wave reception

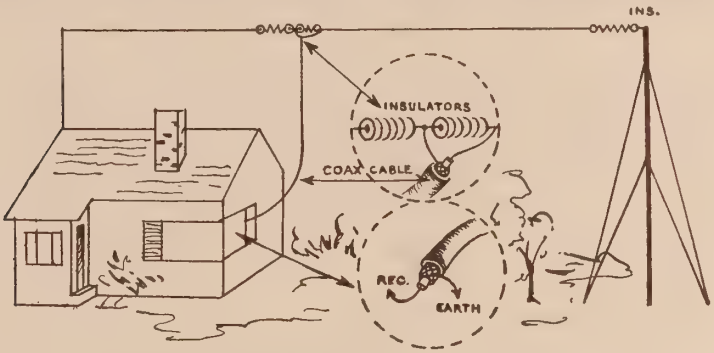



Fig. 4.

(and possibly medium wave too) somewhat clearer. The aerial itself is simply a single wire. This may be erected vertically if desired, although it may be more convenient to suspend it well out in the open and at a greater height if it is horizontal. The lead-in or feeder must in this case be of the type known as co-axial cable consisting of a single wire with special insulator encased in an outer metal braid. The centre wire is connected to the end of the aerial, at the same time ensuring that the outer braid does not touch this connection. Then bind the whole con-nection with insulating tape and if possible give a final coat of shellac varnish to prevent intrusion of moisure. It is advisable to lash the cable to the top of the mast in order that the weight of the cable is not taken by the connection at the end of the aerial as this is rather fragile. The cable is then taken down to the receiver where the centre wire goes to the aerial terminal and the outer braid is earthed. It may be of interest to note that the length of the feeder cable can be 30 or 40 feet or more,

also it can come into contact with metal objects or even be buried underground without any serious loss of signal strength. The main point to remember is to get the actual aerial as high and in the clear as possible.

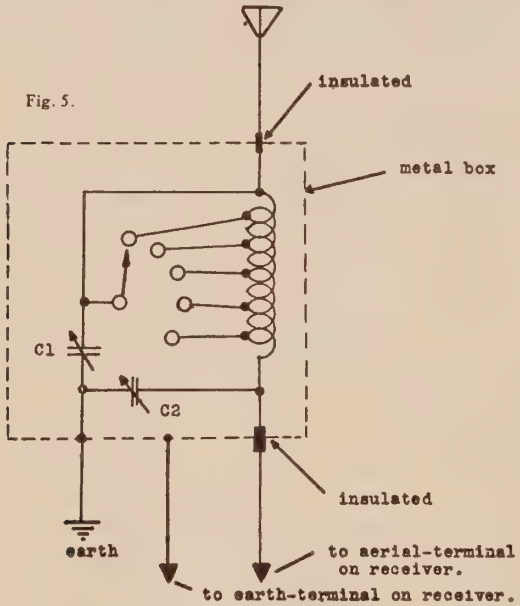
The subject of aerials is vast, and interested readers are referred to the various journals and textbooks dealing with these matters in detail.

## AERIAL COUPLER.

The "gadget" here discribed (fig. 5) is well worth the slight trouble involved in its construction. Its use will help to eliminate those whistles which are frequently troublesome. The coil is wound with 20 S. W. G. enamelled wire, about 25 turns on a former of 1" diameter with tappings every 2 or 3 turns. A refinement to this unit is to build the whole into a metal box which is in turn connected to earth.

*Operation.* Connect the aerial to the input terminal as shown in the

Fig. 5.




C1,C2: 15c-2oo pF (.oool5 .ooo2 mfd)

diagram and take the output lead to the aerial terminal of the receiver. A signal is tuned in on the receiver and the two condensers rotated. By selecting different tapping points by means of the switch, a peak will be noticed when the correct combination has been found. This tuning

point remains more or less constant for each band, but must be retuned for each band i.e. 9 mcs 12 mcs etc.

## REPORT — LOGBOOK — DIFFERENCES IN TIME — ABBREVIATIONS.

If you have become expert at finding stations on your receiver, you are likely to develop a new hobby. You may become a collector of QSL-cards. Every broadcasting station in the world is interested in knowing how its broadcast transmissions are heard round the globe. Consequently they invite listeners to send in reports on the quality of the reception. As a reward for such a report the listeners receive the QSL-card of the station (QSL means "receipt" in radio language). They also often receive illustrated booklets, stamps and so on. The QSL-cards are as a rule well printed and richly coloured. Not all stations return a card, but in most cases you receive an answer at any rate.

What should such a listener-report be like? In most cases it may be written in English, except perhaps to certain countries in South America which prefer a report written in Spanish. The most important thing, of course, is to be sure that you write to the correct station you have heard; a wrong report is not answered. In order that the transmitting station can see that you have been listening to the right station. you must mention in your report what you have heard for at least half an hour, with exact times in G. M. T. If you cannot give the name of the music which you have heard, then write for example: 01.23, song by a woman with orchestra, etc. 01.27, violin solo, etc. The station and its technical staff are very interested in having as full information as possible, preferably in the following order:

1. Frequency and wavelength, date and time (always in G. M. T.) and the programme heard.
2. Strength and intelligibility (given by means of the QSA-code and the R-code, see below).
3. Fading (including the rapidity of the fading and if the station fades away completely).
4. Interference from other stations (given by means of the QRM-code).
5. Atmospheric (static) electricity (given by means of the QRN-code).
6. Description of your receiver, i.e. if it is a battery receiver or a mains (electric) receiver, number of valves, loudspeaker or headphones.
7. What sort of aerial you use.
8. For comparison information as to how other stations on about the same wavelength are heard at the same time.

If you want to make your report especially effective, you must listen to the same station for several days and report on each listening-session or period.

The following international abbreviations may be used in the report, as mentioned above:

QRM — interference by other stations.
QRN — disturbance by atmospherics.
QSB — disturbance by fading.
QSL — receipt (verification).
QRG — wavelength (frequency).
QTH — address.
WX — weather.
RX — receiver.
QSA — strength with which the station is received.

The strength is denoted in the following grades:

QSA 0 — hear nothing (disappeared).
QSA 1 — unintelligible, hardly audible.
QSA 2 — intelligible now and then, but weak.
QSA 3 — intelligible, but with some difficulty.
QSA 4 — intelligible, without difficulty.
QSA 5 — perfectly intelligible, powerful.

Often another scale is used, especially by amateur transmitters, the "R. S. T.-code", where R means readability and goes from 0 to 5. S means strength and goes from 0 to 9. T is tone, also from 0 to 9, where a telegraphy signal is used.

In broadcasting too, "R", which generally has 9 degrees with the following values, is used for strength:

R 0 — not heard.
R 1 — hardly audible.
R 2 — weak, a few words distinguished.
R 3 — weak, but tolerably intelligible.
R 4 — intelligible.
R 5 — of medium quality and easily understood.
R 6 — fair intensity of sound.
R 7 — rather powerful.
R 8 — powerful.
R 9 — exceedingly powerful.

A useful item for all shortwave listeners is the log book. It is a "mirror" of one's work and an important asset for later use. As a guide the following extract from a log-book can be recommended:

| Number | Date | Time in G. M. T. | Scale-position | Wavelenght in mtr. | Frequency in kc/s. |
|---|---|---|---|---|---|
| 1 | 7/4.50 | 14.10 | 51° | 19.74 | 15200 |
| 2 | 9/4.50 | 00.15 | 23° | 24.10 | 12455 |
| 3 | | | | | |
| 4 | | | | | |

| The station heard | Call letters | Country | Strength | Content of programme | Remarks |
|---|---|---|---|---|---|
| Shepparton | VLA6 | Australia | R6 | Violin solo | Slow fading |
| Quito | HCJB | Ecuador | R7 | Organ music | QRM telegraphy |

Reports to stations can be compiled from the notes in the log book. The addresses of the different stations can be found in the "World Radio Handbook for Listeners".

*Difference in time:*

It is well known that it is the middle of the day at some stations when it is late night here, and vice versa. An international chronology, however, is used between countries, namely G. M. T. (Greenwich Mean Time), which is the time for the zero longitude meridian, which passes through Greenwich, England; in other words, when it is 18.30 according to Danish standard time, it is only 17.30 according to G. M. T. chronology. Denmark is consequently one hour in advance.

Below we mention the differences between G. M. T. and the time in a number of other countries:

| | | | | | |
|---|---|---|---|---|---|
| Andorra | +1 | England | 0 | New Zealand | +12 |
| Argentina | −3 | do. (Summer) | +1 | Norway | +1 |
| Australia (East.) | +10 | Greenland | −3 | Panama | −5 |
| Austria | +1 | British Guiana | −3¾ | The Philippines | +7 |
| Belgian Congo | +1 | Holland | +1 | Poland | +1 |
| Belgium | +1 | Iceland | −1 | Portugal | 0 |
| Brazil | −3 | India | +5½ | do. (Summer) | +1 |
| Canada (Quebec) | −4 | Iran | +3½ | Senegal | 0 |
| do. (summer) | −3 | Israel | +2 | Spain | +1 |
| Ceylon | +5½ | do. (Summer) | +3 | Sweden | +1 |
| Czechoslovakia | +1 | Italy | +1 | Switzerland | +1 |
| Ecuador | −5 | Java | +7½ | Turkey | +2 |
| Eire | 0 | Luxembourg | +1 | Uruguay | −3 |
| Finland | +2 | Malaya | +7½ | Moscow | +3 |
| France | +1 | Malta | +1 | USA (East. Z.) | −5 |
| French Equatorial Africa | +1 | Mexico | −6 | USA (Pacific Z.) | −8 |
| Germany | +1 | Monaco | +1 | Vatican State | +1 |
| | | Mozambique | +2 | Yugoslavia | +1 |

Many English-speaking countries do not use the 24-hour system, but put a. m. or p. m. after the time, so that e. g. 7.00 a. m. is 7 o'clock in the morning and 7.00 p. m. is 19 hours. — Here are a few examples:

When it is 17.00 Greenwich Mean Time,
it is 09.00 in the morning in Francisco
it is 18.00 in Rome
it is 03.00 the next morning in Eastern Australia.

The date must consequently be taken into consideration when speaking of some of the distant stations.

## SHORT-WAVE RECEPTION CONDITIONS.

Short-wave reception conditions are controlled by the state of the ionosphere—that part of the high atmosphere which acts as a reflector to the short waves, and permits them to travel long distances round the earth's curved surface. When viewed on a world-wide basis, the changes which occur in the ionosphere from time to time are exeedingly complex, and so, in an article like this, it is impossible to deal with reception conditions in every part of the world in detail. We must, therefore, confine ourselves to the general trends in conditions, as they are likely to affect reception during the Northern Hemisphere winter of 1950—51.

In the first place, because the frequencies (wavelengths) of use for short-wave communication are directly related to the degree of activity of the sun—owing to the fact that it is the sun which produces the ionosphere—and because that activity is now declining the most useful frequencies are becoming lower (the wavelengths are getting longer) than they have been during the past few years. So, during the period we have in mind, somewhat lower frequencies (longer wavelengths) are likely to give better reception than was the case last winter, and this effect will apply throughout the world. It will mean that the very highest broadcast frequencies (shortest wavelengths) which were usable during the day-time are likely to be less regularly usable, at least from certain directions, than was the case last winter, while at night the lowest broadcast frequencies (longest wavelengths) will have to be used for a greater proportion of the time for reception from certain directions.

In addition to the above effect there is the seasonal trend in conditions to consider, and this is by no means simple, because, whilst it is winter in the Northern Hemisphere the summer season prevails south of the equator, and so the trends are of an opposite character in the two Hemispheres. In the Northern Hemisphere the best received frequencies for day-time reception will tend to become higher (the wavelengths become shorter) from August to about November, to decrease somewhat during mid-winter and after that to increase again. On the other hand, the nighttime frequencies will tend to decrease (the best wavelengths will become longer) from August to December, and then will start to increase again. In the Southern Hemisphere the opposite tendencies will, in general, prevail during the period, though it is stressed that this is only a general statement. Best received day-time frequencies should, however, tend to become lower towards December and then to increase again, whilst night-time frequencies should become higher from August towards December, and then decrease again towards March and afterwards.

Obviously it is impossible to give here precise frequencies for reception in every part of the world, but the following tables may be useful as giving an indication of what may be expected to be the best frequencies

for various times of day. They are intended to apply to localities lying in mid-latitudes (roughly 40° to 60° N in the Northern Hemisphere and 20° to 40° S in the Southern Hemisphere), and refer to *long distance* reception only, i. e. distances greater than 4000 kms. Reception in lower latitudes than these will, in general, be possible on considerably higher frequencies, whilst reception over shorter distances will necessitate the use of considerably lower frequencies (longer wavelengths). The tables for the southerly and northerly directions are intended to apply mainly to reception in one hemisphere from stations located in the other. Frequencies are given in terms of the broadcast band, and it is to be noted that, whilst the band indicated should provide the best reception, reasonable reception should often be possible on lower frequency bands.

## NORTHERN HEMISPHERE

| | *Reception from* Easterly Directions | | | | Westerly Directions | | | | Southerly Directions | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Local Time | | | | | | | | | | | |
| | 00.00 | 06.00 | 12.00 | 18.00 | 00.00 | 06.00 | 12.00 | 18.00 | 00.00 | 06.00 | 12.00 | 18.00 |
| | Expected Best Frequencies (in Mc/s) | | | | | | | | | | | |
| September .... 9 | 15 | 17 | 15 | 9 | 9 | 15 | 17 | 15 | 21 | 26 | 21 |
| October ..... 7 | 15 | 21 | 11 | 9 | 7 | 21 | 21 | 11 | 17 | 21 | 17 |
| November .... 7 | 17 | 21 | 11 | 7 | 7 | 21 | 26 | 9 | 15 | 26 | 17 |
| December .... 6 | 11 | 15 | 7 | 7 | 6 | 15 | 21 | 7 | 11 | 26 | 17 |
| January ..... 6 | 11 | 15 | 7 | 7 | 6 | 15 | 21 | 7 | 11 | 26 | 17 |
| February ..... 6 | 15 | 21 | 7 | 7 | 6 | 17 | 21 | 9 | 11 | 21 | 17 |
| March ..... 7 | 15 | 21 | 9 | 7 | 7 | 17 | 21 | 11 | 15 | 21 | 17 |
| April ..... 7 | 11 | 15 | 11 | 9 | 7 | 15 | 15 | 15 | 17 | 21 | 21 |

## SOUTHERN HEMISPHERE

| | *Reception from* Easterly Directions | | | | Westerly Directions | | | | Northerly Directions | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Local Time | | | | | | | | | | | |
| | 00.00 | 06.00 | 12.00 | 18.00 | 00.00 | 06.00 | 12.00 | 18.00 | 00.00 | 06.00 | 12.00 | 18.00 |
| | Expected Best Frequencies (in Mc/s) | | | | | | | | | | | |
| September .... 9 | 17 | 21 | 11 | 11 | 9 | 21 | 21 | 15 | 21 | 26 | 21 |
| October ..... 11 | 15 | 17 | 15 | 11 | 9 | 17 | 21 | 11 | 17 | 21 | 17 |
| November .... 11 | 15 | 17 | 17 | 15 | 11 | 15 | 17 | 9 | 15 | 26 | 17 |
| December .... 11 | 15 | 15 | 15 | 15 | 11 | 15 | 15 | 7 | 11 | 26 | 17 |
| January ..... 11 | 15 | 15 | 15 | 15 | 11 | 15 | 15 | 7 | 11 | 26 | 17 |
| February ..... 11 | 11 | 15 | 15 | 11 | 9 | 15 | 15 | 9 | 11 | 21 | 17 |
| March ..... 9 | 15 | 17 | 15 | 11 | 9 | 15 | 17 | 11 | 15 | 21 | 17 |
| April ..... 7 | 15 | 21 | 11 | 11 | 7 | 17 | 21 | 15 | 17 | 21 | 21 |

# WORLD LISTENERS WRITE ABOUT THEIR EXPERIENCES

*R. V. Aldridge, Amersham, Bucks, England.*

This short article is mainly gossip, disconnected, but nevertheless intended to give the newcomer to the game of S. W. Listening some idea of what the other fellow does. The old hands will probably dismiss these notes with cries of "this chap knows nothing about listening; he ought to do it MY way". I hope so anyway, for it stimulating to disagree with the printed word and demolish the author with a feeling of moral superiority.

Sixteen or so years ago I tuned in my first shortwave station on a home-made one-valver. D.X. was not entirely without tears. Frequency lists and monthly journals were not so readily available as they are today, thus most of our listening was "original". The unidentified station had to be logged day after day until the clues of each day's listening could be pieced together and a guess made at its location. Receivers, too, were not intricate affairs with crystal filters, and accurately calibrated dials with flywheel tuning mechanisms. No, mine was a shakey job with rather erratic reaction control and lots of hand capacity.

Today my rig is a 16 valve superhet, plus various auxiliary gear such as frequency meter, aerial tuner unit, preselector, and several aerial arrays which can be brought into use by the flick of a switch. Having read this, please do not feel that your domestic 4 valver will not bring forth stations of interest; it will. The extra trimmings listed above just make things easier for the lazy type with little patience. Furthermore, you will aspire to even better equipment as time goes on, for once the short wave bug bites you, you will stop at nothing but the best.

Apart from listening, I have various "systems" which in the long run are an aid to listening. A card index is kept for as many stations as possible. (Mine runs into the thousand figure now). The cards used are the usual 5" × 3", ruled both sides, headed with station and frequency. Then follow such details as location, slogans, interval signal, schedule, times of English programmes (if any), date when first heard and all future dates when an entry is made in the log book of reception of the station. date of sending a report, date QSL received (if at all!), power, QTH, and any other data of interest. The information on these cards is kept up to date from the gen gleaned from the monthly publications and any other source such as Radio Australia and Radio Sweden DX programmes. Too complicated? No not really, once the cards have been made out and arranged in whatever sequence you prefer. My choice is under country headings, with the stations of the country in order of frequency.

Another aid to listening is to prepare a set of larger cards, say 8" × 5", as shown in the sketch below. Each card is headed with a time period covering an hour, or half an hour if you prefer, and the whole system covering the period during which you listen. (In my case, this is the whole 24 hours—but not regularly!).

20.00 — 21.00

| Station | Frequency | Dial | Remarks |
|---|---|---|---|
| VLB 2 | 9650 | 80 | Closes at .... |

Heading and ruling should be in Indian ink. As information of interesting stations comes to hand. I jot the details down in pencil on the card, or cards, applicable to the time when the stations are reported to be received. On starting a period of listening, the cards corresponding to the time are turned up and an attempt is made to log the stations noted thereon. When a station has been logged, the dial reading is entered in the appropriate column for future reference. As the notes become redundant, they are erased and fresh stations listed. The idea behind all this is that I have in the past read of a station being received and thought I would try my hand, but alas, my memory failed. The cards, therefore, remind me that I have a certain station to listen for, and they also give the relevant details, thus saving time.

Other systems include keeping records of countries heard and verified, reports sent, and QSL's received, etc. There is, of course, the all important station log book, in which details of stations received each day are recorded. The log book is ruled with columns covering time, call signal, strength, readability, QRN, QRM, etc. and sufficient space for details of programmes heard. The weather and general receiving conditions are entered at the end prior to ruling off the day's listening.

Listening times and frequencies are carefully studied. During the summer months, when conditions for DX are not so favourable, reports are sent to the "locals", that is, stations which are easy to receive under almost any conditions. The main DX listening at this period is in the early morning from 05.00 to around 08.00. Latin-Americans are quite good there, and the elusive Mexicans are probably at their best; XEWW 9500 kc and XEBT 9625 kc being the most consistent. Another station regularly heard during these early morning periods is TIPG San José, on 9618 kc —just below XEBT. The call is "La Voz de la Victor". From September the Africans come in well, and Nairobi on 4850 kc is often a star performer around 18.00 GMT. Capetown on 5880 is fair, but suffers from bad interference from a continuous wave station. (This is where a crystal filter comes in useful). Later in the evening the Latin-Americans on 9, 11 and 15 mcs are to be logged. Afternoons at this time of the year will provide interest in searching for the Far East stations, although these are not really at their best until around December.

Just before Christmas most people seem to log the elusive ones in the East; Hong Kong 9525 kc around 14.30; Macassar, Celebes YFA4 9550 kc, and Rangoon, Burma on 9530 kc. These ARE difficult; so don't be surprised if they are not there when you search; it may take many periods of listening to log them, and then you may not hear them again for months.

From December to March the happy hunting ground is on the lower

frequencies late at night. Latin-Americans are so numerous that you could spend many hours sorting them all out. Venezuelans abound on the 3.5 and 4.8 to 5 mc bands from about 22.00. The Brazilian stations usually come in somewhat earlier, often from 20.00 when conditions are good. During the late afternoons the Indian stations, Calcutta, Madras, Delhi, etc., on the 60 meter band, together with Pietermaritzburg, Johannesburg and Lourenço Marques, are all to be heard. Accra, ZOY, on 4915 kc is another seasonal station with rather weak signals between 17.00 and 18.00, closing with "God save the King".

It may be of interest to note that during the winter months the frequencies above 8 mcs may be very erratic after dark, and on many occasions few DX stations will be heard. However, you will usually find the lower frequencies fairly reasonable, and in my case listening continues into the small hours of the morning on the 5 and 6 mcs band.

*Viggo Bengtson, Scandinavian DX Club, Jönköping.*
*How to form a DX Club:*

Interest in short wave listening and the reporting of stations heard has grown in Sweden during recent years, and a number of small and big DX clubs have been started. DXers like to meet and discuss their experiences on the short wave bands and show the QSL-cards they have received. But how can one start such a DX-club? It is, of course, difficult to give general rules, as there are so many factors to be taken care of, but most often the intention is to start a local club, and it then depends upon finding a local DX listener, who is willing to manage this. You must find an active man as your leader. Most of the rest depends upon how much time the man is able to spend on the club. If he has plenty of time at his disposal, your club may grow into an organisation with its own journal, interesting meetings, and so on. In the first place the intention must be that the DX club shall be a hobby club, and that it is the hobby which has to be taken care of, and not all kinds of irrelevant matters which often crop up as the result of an over-organised or over-large club. To be started, a club must have a chairman, and to this post the above-mentioned personality should be elected. He must be the driving force of the club. He should also have a secretary to handle the correspondence, etc. and if the club receives subscriptions from the members, a treasurer must also be found. However, none of the members must be so busy, that he cannot continue to follow the hobby for which the club was started.

Some clubs distribute their own journals, but it must be realised that this is a very exacting job, and requires a good organisation. On the other hand, a good journal is a good advertisement for the club and is of great importance to its general development.

And lastly: A DX club is a hobby club. The club club must serve the hobby, and not the contrary.

*P. Bénazet,* Professeur à *l'École William Ponty Sebokhotane Sénégal AOF, French West Africa.*

I use 2 horizontal indoor coil-aerials, 8 feet high with no earth wire.

The best periods for listening are 17.30 to 24.00 GMT and 06.45 to 09.30 GMT.

Listening is made better by two main factors in tropical areas: from November to March by the longer night-time, and from June to October by the humidity of the air.

Patience is greatly required for identifying a station: I wait until I hear either the identification tune ar the call of the announcer. A knowledge of scraps of English, French and Spanish languages may be useful without being essential.

On each waveband I try to check the accuracy of the dial. For instance Radio Brazzaville is on the air on 25.06 m., and if I hear it on 25.16 as shown on my dial, I know there is a frequency slippage of 10 cms in relation to the dial of my set. When I hear an English speaking station on 25.55 m. I guess it is a station the real wavelength of which is 25.45 m.. I check these true wavelengths and the respective wavelengths shown on my dial at least once a month. Now and then I have my radio-set checked by a radio-dealer to ensure greater accuracy on my dial, but I think it is almost impossible to have an accurate dial for 4 wave bands at the same time; if the 25 m. b. is accurate, there may be a frequency slippage of up to 20 or 30 cms on the other bands.

Whatever the method may be of identifying a station and fully enjoying a programme, I do believe one cannot do without the WORLD RADIO HANDBOOK.

*Arthur Cushen,* Short Wave Editor of the "New Zealand DX-TRA", and of the "New Zealand DX Times", Invercargill, New Zealand.

With some extensive aerials in use, signals on medium wave have been heard and verified from every continent, while on short wave a long wire antenna of 650 ft. has also been found of great use for low frequency reception; the other aerial at present in use is a single wire on bearing 340°. Last winter, when the NZRDXL had special broadcasts from Laurenço Marques of the Rugby results between South Africa and New Zealand, another single wire antenna bearing on that country was used for reception in the 60 and 85 metre band, which proved of great value when at times the details received were the first to be received in this country. For reception of the BBC a single wire antenna bearing on London is used.

One of the bases of success is to know the locations of the stations on the dial, and to have a large and correctly calibrated scale, and to know the main stations to be used as pointers when DX'ing. In this country seasons play a great part in reception and one has to watch the reception periods carefully. In our winter the 49 meter band for South American signals is

open as early as 01.00 GMT in perhaps two weeks at the peak period, so it is necessary to watch the opening up of bands to enable loggings of the lower powered Latin Americans, which are my favourites, to be made.

My favourite station outside Radio Australia and the BBC is XEBT which provides me with evening dance music here at dinner time, from 05.00—06.00 GMT. XEBT on 9625 kc/s is easy to recognise, due to the motor horn identification type signal, and frequent use of the slogan "Las Emisoras de America".

DX'ers in New Zealand generally find reception best in winter during daylight when signals from Latin America are excellent, and in their summer during darkness when the bands are open from 11 to 60 metres.

*Dobeson B/MA London:*

The radio stations of Spain are not all government owned; in fact a substantial minority is owned by private interests and small organisations. Consequently, there is no system of identification common to all stations except, of course, the National Anthem played when stations close down. Even so, many stations close down with different tunes, which are in the main local songs and marches. Fortunately for the harrassed listener, there are broadcasts which are relayed by all stations in Spain, Canary Islands and Morocco and they are the newscasts from Radio Nacional de España in Madrid which generally take place at 13.30 and 20.45 daily.

The news is preceded by an identification signal, which dates back to the mediaeval epoch, the local stations hooking up with Madrid by landline just before. After the "Cabalgate Militar" as this identification signal is called, an announcer says "Radio Nacional de España Madrid", which is followed by the chimes from the Puerta del Sol in Madrid. The news is then read by two men. This may last from ten to thirty minutes depending on the news, the sports season and whether there are any actuality relays or commentaries. These latter occur frequently, for Spaniards prefer the vitality and personal touch of interviews, speeches and outside broadcasts to the more colourless, plain newsreading. These newcasts close down with a composite recording comprising, firstly the traditionalist anthem, secondly the Falangist Anthem and thirdly the National Anthem of Spain. The station to which you are listening will then identify itself. So whenever you hear the slogan "Radio Nacional de España Madrid" you may be listening to Valencia or Radio Tetuan or any of the other eighty Spanish stations. One feature which distinguishes any Spanish station from all other stations, other than the Tangier stations and Radio Andorra, is the type of music which predominates. Popular music in Spain is very rich and diverse, ranging from traditional music practically unchanged for centuries and some Basque music which goes back beyond the time, when music was first written down, to the most modern South American and North American types of popular and dance music and the latest schools of "classical" music in the Spanish

idiom. Most of this music is unknown outside Spain except some works by famous composers like de Falla, Albeniz, Granados, Arbos, etc. and the "typical" music with castanets, originally the music not of Spaniards but of Andalusian gypsies; so, for most people the Spanish radio is the only medium for hearing this exotic and fascinating music.

Music and musical request items play an important part in the English language broadcasts from Radio Nacional de España, Madrid on 32.02 metres. These take place daily at 20.15 GMT for Europe and 23.00 GMT (18.00 EST) for North America. They comprise news, very largely of Spanish events both in Spain and abroad, notes on anniversaries of famous people or important events, talks on subjects such as life in Spain, folklore, industries, national events or international meetings held in Spain, political commentaries, and so forth. Radio Nacional also broadcasts in many other foreign languages, all the broadcasts being arranged and presented by natives of the countries concerned.

Another interesting station in Spain is Radio SEU (Sindicato Español Universitario) Madrid, EDV 10 on 41.84 metres (7171 kc/s). This is run by the University Students' Syndicate and its programmes are mainly of particular interest to young people, with modern dance music predominating in the musical programmes. Radio S. E. U. also runs a radio school giving theoretical and practical instruction to students of this branch of engineering. Radio SEU is on the air from 19.00 to 24.00 GMT.

*Lars Eric Hansson, Jonsered, Sweden:*

Many of those people who have not discovered what the short waves offer them often say their receiver is not good enough, but in most cases it appears very obvious that they have never made a serious attempt to come to terms with the short wave bands on their own receiver.

First of all what is unusual compared with the medium and long wave bands is that you cannot find broadcast stations all over the short wave band. You will find that they are grouped very closely together in the socalled 13, 16, 19, 25, 31, 41, 49 and 60 metre bands. Between these bands there are plenty of stations of other kinds, and for an inexperienced short wave listener it is customary to imagine, that all the noise from these stations is due to their receiver being inadequate whereas the reverse is the fact. If, however, you search carefully in the short wave bands mentioned above, you will find that even a small standard receiver may be sufficient to cover almost the whole world.

On a receiver without bandspread it is much more difficult to tune to a station in the short wave bands than on the medium waves. The reason is that the stations are very close together, but as soon as you have the right feeling in your fingertips, you will find that even on a very small receiver you will be able to locate small distant stations between the big 50—100 kW ones.

If you are the lucky owner of a modern receiver with bandspread, the problem becomes much simpler, and tuning on the short waves becomes just as simple as on the midum waves, so that you can easily select a suitable station.

If you want to catch the very weak stations on the air, you will get great assistance from a pre-selector, which is an amplifier with one or two valves which increases the impulses from the aerial before they reach the receiver. With a pre-selector you will, of course, have another one or two knobs to handle when tuning, but this little extra trouble is more than compensated for by your ability to receive even very weak stations which you would otherwise have passed on your scale unnoticed. Factory-made amplifiers are not always available, but with some dexterity you may be able to build one yourself or you may have one made by your dealer.

Another problem is the aerial, and in this respect you are more or less forced to keep what you have. The best thing, at any rate for the upper end of the short wave bands, would be a 15—20 meters long horizontal aerial, but the very popular rod aerial also gives very good results. A few years' experimenting with a 19 m. long horizontal aerial compared with a 2½ meter rod aerial has shown, that except on the 60 meter band, you cannot place any marked improvement to the credit of the horizontal aerial. On the contrary, it proved that the latter gave better results in the 13, 16 and 19 meter bands. The rod aerial has another advantage, in that it is much easier to place on the roof or outside the window than the horizontal type which often causes trouble owing to current or phone wires, difficult landlords, etc.

*Identification of Stations:* A reliable list of stations which gives you information as to their frequencies, wavelengths interval signals, announcements, hours of transmission etc. is first of all required for finding out which station you are listening to. It is only on the most modern receivers with bandspread that you are able to read the name of the station on your scale. In other cases you must go from station to station by tuning to their wavelengths, and then you must have the list of wavelengths and stations as a guide.

If you wish to find a certain station, you must start from a station the position of which you know on the scale or which is easy to trace, and from this point turn your dial towards the station wanted.

It is a good pactice to memorize the positions of two or three stations in each band, to give you some exact starting points. In the evening and early night for instance Brazzaville on 11970 kc/s (25.06 m), Leopoldville on 9767 kc/s (30.71 m) and Andorra on 5985 kc/s (50.13 m) are very easy to identify and are suitable as starting points. Other stations which are generally easy to memorise are those which transmit in your own language.

If you pick up an unknown station and want to identify it, you must, of course, first of all try to hear its announcement, and you must know which

band, and preferably the whereabouts in it to which you are tuned. To find this out, start from the position of a well known station in the neighbourhood, and try to estimate how many kc/s you are away from it. In this way you can find out within a reasonable margin the frequency of the station to which you are listening.

If you cannot understand the announcement, try to determine which language is being used, note the hour of transmission, and look up the table of wavelengths to find out, which one is the most likely.

As far as the language is concerned, there are plenty of details which may give you a clue to finding out which country you are listening to. For instance there is a great difference between American and BBC English, American and European Spanish, etc., and such differences you will soon learn to distinguish. After some time of DX-listening you will be able to tell merely from the language of the announcer and his pronounciation from where he is speaking.

However, you will not only do well to observe the variations of the language itself, but also note many others details which are typical of a particular country or part of the world. Such details include the manner of announcing, the interval and identification signals, advertising, etc.

In this way you can fairly accurately guess the nationality of the station, and if you have estimated the approximate wavelength in the way mentioned above, it will not be difficult to identify the station in question.

If it is a new station, which is not mentioned in the table of wavelengths, there is nothing to be done but to have patience and wait until you catch the announcement. If you cannot hear this, you must listen to the items of the programme, even if you do not understand the language, and, from the news bulletins mentioning place-names and similar helpful clues, try to identify the nationality and name.

It is a great help to listen to the programmes for DX-listening, which come regularly from Radio Australia, Radio Sweden and OTC, Leopoldville. If you cannot identify a station, you can write to one of these three stations and ask them to mention your problems in their programme for DX-ers, and as these programmes are heard all over the world it is most likely that a more suitably placed listener has had better success in identifying the station than you have had.

One thing about short wave listening is clear: what appears as noise to the beginner will soon be split into identifiable elements each with its own character. It is merely necessary to sit down and mobilise some patience, and you will soon be just as familiar with Radio Australia or Radio Nacional de Rio de Janeiro as you are with your home programme.

*Kurt Lau, Münster, Germany.*

I known from talks with German listeners that their main difficulty lies in finding stations one the short wave dial. This is very often due to the

fact that the short wave dials are improperly adjusted. The following is a very simple and efficient method, which has always proved successful.

Stick a narrow slip of paper on the face of the dial very close to the existing short wave scale of your set and then tune in to a clear and powerful station in one of the short wave bands. Wait for the station identification which most stations give every quarter of the hour. When you are quite sure you have got that correct—the name of the station and its exact frequency or wavelength—mark it on the slip of paper and add the first letter of the name of the station to the mark (e. g. "C" for Canada). Look up the station in your list of short wave stations and mark it there too. Once you have thus logged and marked two or three stations in each of the short wave bands, and you know their exact frequencies with the help of your list of stations, you will be able to tune in to whatever station you like, provided you tune the scale knob of your set very slowly.

*R. O. Lyttle, North Bay, Ontario, Canada:*

When I first began listening, I used an old short wave converter with plug-in coils and a dial marked from 1 to 100. I had absolutely no idea, where I was on the short wave spectrum until a station announced its frequency. With the calibration correctly marked on the receiver I can pick up a station within a few seconds.

The first thing I learned after I began was that I had to tune the dial extremely slowly over the bands and that sometimes I had to stop and listen to a station for a few minutes before I knew whether the announcements would be in English. I soon became familiar with the various styles of announcers, so that if I stopped at a station and heard a certain man giving a newcast, I knew that is was definitely the BBC; and the same with the voices of America, Australia, and Radio Canada. Less time was then wasted in listening for identification, if I were seeking new loggings for my log book. Eventually, although I could understand only an odd word or two, I learned to recognise whether a station was broadcasting in French, Spanish, Russian, Swedish, German or one of many other languages. I did this by looking up the montly booklet of the Voice of America, and noticing that there was a French newscast at a given time. I listened to it for several days until I could tell by the tone, accent and the odd word, which language it was. Soon I realised the distinction between Oriental and Indian music, so that I would not be fooled by such weird-sounding music. Of course it is not very difficult to identify Latin American music, which is very popular over stations in South and Central America.

When I received my first copy of World Radio Handbook, I was amazed to find so many details in it which really helped me to be definitely sure I had logged stations from every one of the 77 countries I have heard to date. There were the announcements in foreign languages made

by stations, the interval signals, and brief sketches of programmes. So that within my first year of DX-ing I knew immediately whether a station I was listening to was in Africa or Australia.

After I had added a superhet to my receiving equipment, I found a little more interference than on the regenerative converter used before. I found that by placing my antenna higher, and also by having the lead-in well insulated, I could reduce this unwanted noise. A sound earth for the radio almost eliminated man-made interference. I also learned that by placing my aerial in different directions for a month at a time, I could choose the best direction for it.

The most important thing in listening, as in most other things in life is concentration.

So remember, put all your thoughts into the radio itself and listen carefully for any tip that might lead to the identification of the mysterious station.

I spend a great amount of the time listening to the ordinary broadcast band for enjoyment, but when I find things dull, I often look to the BBC, London, England, for the news and Radio Newsreel. On Sundays I always listen to a variety show and to the Sunday Half-Hour for my favourite hymns. If my watch needs a check, I can depend on Big Ben for the correct time. Early in the morning I find that the news from Radio Australia is interesting and the classical music is very enjoyable. The various DX-programmes from Radio Denmark, Radio Sweden, Radio Norway, Radio Australia and The Voice of America, as well as OTC2 in the Belgian Congo keep me up to date on stations around the world. It takes a mighty effective ionospheric storm to prevent me from listening to the short waves.

*Anton Meller, Krems a/Donau, Austria.*

*On listening to distant stations in Central Europe.*

As ought to be well known to all short wave amateurs, DX reception depends essentially on two factors: (1) the time of year and (2) the point reached in the progress of the sunspot cycle, which has such a marked influence on the state of the ionosphere. In spite of the over-riding importance of realising how both these factors work out in DX reception, one usually finds only general references to the variations they bring about, even in the course of detailed descriptions of the processes necessary for picking up signals from particular regions seldom heard at all. This is such an interesting point for us now, that the best way to bring it home seems to be for me to begin by writing an account of the reception of DX stations in Central Europe.

When talking to DX friends, one hears, time and again, of a peak period of DX conditions at a particular time of the year. This conception is founded on utterly false principles. Actually one should speak only of a continuous peak period of conditions! For reception conditions for the different parts of the world vary in any case according to the time of year. To speak

loosely of a period of peak DX conditions amounts to saying that all continents on all bands come over uniformly well, which is nonsense. One gets the best reception results from Africa in winter, from Oceania in spring, from Eastern Asia in late autumn. Generally, South America is heard best in the autumn—with the exception of Chile, which attains the best reception levels in the longer wavebands in winter, in the shorter in spring. Mexico and California also give the best results in the spring. The summer months characteristically show very variable conditions, but one can often get very good results then. As appears from a wide range of observations, it is even too risky to specify particular times of the year as the peak periods for reception from particular continents in some cases; one does better to restrict oneself to individual countries. As an example, I need only cite the fact that the station CR6RN in Luanda is always heard to best advantage in spring and summer, while CR6RG, about 125 miles from Luanda at Dondo, can be received only with the utmost difficulty at this time, whereas it comes over very well in the autumn, when, in turn, CR6RN comes through very badly. Or again, XEWW, "La Voz de la America Latina", in Mexico City, is always best heard in April and May, but very often in winter time weaker stations in the same band as Mexico City may be brilliantly effective when one cannot receive XEWW at all. Nevertheless, I will try, in the following survey, to give the best possible general picture of the listening potentialities for each continent at their most appropriate times of the year.

1. *African reception* rises to its greatest heights in the winter months, when, in particular, rare stations in South Africa, Rhodesia and Mozambique, in the 60 and 80 metre-bands, can be heard well. The best time to search for these countries in these bands in winter is 18.00 GMT. Central Africa also comes over best in winter, especially stations in Angola and the Belgian Congo, as well as Portuguese Guinea, the Gold Coast, the Canary Islands, São Thomé and the French colonial territories in the longer bands, which are all worth mentioning. In the shorter wavebands, good results in winter are notably obtainable from Abyssinia and the islands in the Indian Ocean. In spring and summer, reception in the longer bands becomes a rarity, only Angola being sometimes good in the 31 metre-band, while reception of the rarities can be good in the 25 metre-band too. South Africa can only occasionally be heard in the early morning hours (around 05.00 GMT) in the 31 metre-band. Conditions for Africa in the autumn months vary considerably; sometimes, when reception is possible in the longer wavebands, it is worth while having a general "look round".

2. *Reception from South and Central America* is generally best in the autumn, when all Central America up to Mexico and South America down to Chile are actually at their best. In the winter, Chile in the 49 metre-band is particularly good, while reception from the other countries lags distinctly behind. In this season, good results can be obtained in the 60 and 80

metre-bands, in which little remains during the preceding transition period. One can hear Brazil in these bands above all before 23.30 GMT, that is before the overlapping stations in Venezuela and Colombia come through. Moreover, while the best reception can be obtained about 03.00 GMT in the longer bands, in the spring rare stations in Chile and Paraguay can be heard as early as 22.00 GMT in the 25 metre-band. In fact, in the 19 metre-band good Brazilian reception is possible in the winter even as early as 18.00 GMT. In the autumn, winter and spring particularly, good conditions in the longer wavebands for Peru and Bolivia occur after 03.00 GMT. Furthermore, Colombia and Ecuador, Cuba and El Salvador are, in general, at their best around 04.00 in these months. Good Mexican reception predominates in the spring, when the best time to search is also around 04.00 GMT. It is in the summer that good reception from the islands in the Carribean Sea, Guatemala and Nicaragua occurs. Generally speaking, the best conditions for the nearer South American countries and for Central America coincide with sunspot maxima, while the periods of sunspot minima are better for the farther-off parts, such as Chile.

3. *Eastern and Far Eastern* reception is at its best at the time of sunspot minima, and during the time when sunspot activity is at its height, attempts at receiving the eastern Asiatic countries might as well be left alone! The same, moreover, holds good for reception of stations in Oceania and for the rare stations of the Australian Broadcasting Commission. The best results are usually to be obtained in autumn, winter and spring, whereas East Asiatic conditions are only rarely good in summer. The autumn and winter are the best seasons for Indonesia, Indochina and Burma, in which connection times after 15.00 GMT come into play, while the spring is the best reception period for Siam.

4. *Reception of the islands in the Pacific Ocean and the internal A. B. C. stations.* Reception of the intern. stations of the Australian Broadcasting Commission is possible only in the shorter wavebands. Thus the 19 and 25 metre-bands give the best results in the spring and the 31 metre-band in winter. The times at which reception is likely to be best are as follows for the various bands: In the 31 metre-band, Oceanic transmitters would be heard best about 11.00 GMT in winter, while the A. B. C. would come through well about 20.00 GMT at the same time of the year. In the shorter bands, the A. B. C. would be as well represented at 04.30 in the morning as around 20.00 GMT, while Tahiti and New Zealand would be logged only in the early morning hours: only rarely would good evening reception of New Zealand be noted. Hawaii should be heard well in the 16 metre-band before noon and in the 79 metre-band not until 14.00 GMT.